

Application No.: 10/524,688  
Art Unit: 4159

Amendment under 37 C.F.R. §1.111  
Attorney Docket No.: 052078

### **REMARKS**

Reconsideration of this application, as presently amended, is respectfully requested. Claims 1, 3-6 and 8-11 are now pending in the present application, claims 2 and 7 having been cancelled by the present Amendment. Claims 1-11 were rejected

#### **Objection to the Abstract**

The Abstract was objected to for using language considered improper according to preferred USPTO practice. The Abstract has been amended to remove the language that is considered improper. Approval and entry of the amended Abstract is earnestly solicited.

#### **Objection to Claim 11**

Claim 11 was objected to for an informality. The current amendments to claim 11 obviate the objection to claim 11. Withdrawal of the objection to claim 11 is requested.

#### **Claim Rejection- 35 U.S.C. §102**

Claims 1-3, 5, 6-8 and 10-11 were rejected under 35 U.S.C. §102 as being anticipated by **Sakagami et al.** (USP 5,961,291). For the reasons set forth in detail below, this rejection is respectfully traversed.

First, it is noted that the claims have been amended to recite a positive-displacement vacuum pump. This type of vacuum pump has a pair of pump rotors that are rotated synchronously in the opposite directions. By rotating the pump rotors in accordance with the

predetermined pattern at the time of starting the pump, the reaction products can be removed from the casing. Moreover, according to the present invention, the rotation of the pump rotors can scrape off the reaction products deposited not only in the space between the pump rotors and the casing, but also in the space between the two pump rotors.

In contrast, **Sakagami et al.** disclose a turbo molecular pump. This type of pump has only a single pump rotor.

Second, the vacuum pump according to the present invention is operable to rotate the pair of pump rotors in accordance with the predetermined pattern including a combination of at least two of rotation of the pump rotors in a forward direction, rotation of the pump rotors in a reverse direction, and stop of the rotation. The vacuum pump of the present invention is a positive-displacement vacuum pump. When the positive-displacement vacuum pump is coupled to a processing chamber of a semiconductor fabrication apparatus, which requires a high cleanliness, it is not preferable to rotate the pump rotors in the reverse direction, because the removed reaction products could enter the processing chamber. In such a case, it is preferable to rotate the pump rotors in accordance with the pattern of the forward rotation, stop of the rotation, and the forward rotation (i.e., the intermittent forward rotation). Claims 3 recites this limitation. According to the present invention, the operation pattern of the pump rotors can be selected from the forward rotation, stop of the rotation, and the reverse rotation, in accordance with its purpose.

On the other hand, **Sakagami et al.** disclose only a combination of the forward rotation and the reverse rotation.

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In view of the foregoing, it is respectfully submitted that independent claims 1, 6 and 11 patentably distinguish over the cited prior art. Claims 3, 5, 8 and 10 also distinguish over the cited prior art by virtue of their dependency on the independent claims.

**Claim Rejection- 35 U.S.C. §103**

Claims 4 and 9 were rejected under 35 U.S.C. §103 as being unpatentable over **Sakagami et al.** in view of **Blow** (GB 210072).

**Blow** does not alleviate any of the above-noted deficiencies of **Sakagami et al.** Therefore, claims 4 and 9 patentably distinguish over the cited prior art for the same reasons set forth above for independent claims 1 and 6 by virtue of their dependency thereon.

**CONCLUSION**

In view of the foregoing, it is submitted that all pending claims are in condition for allowance. A prompt and favorable reconsideration of the rejection and an indication of allowability of all pending claims are earnestly solicited.

If the Examiner believes that there are issues remaining to be resolved in this application, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below to arrange for an interview to expedite and complete prosecution of this case.

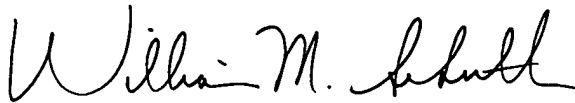
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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

**WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP**

A handwritten signature in black ink, appearing to read "William M. Schertler". The signature is fluid and cursive, with the first name "William" being the most prominent.

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